

Chapter 5

Creating a Worksheet

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Chapter overview

In this chapter your students will learn the basics of creating a worksheet with Microsoft Excel. They learn how to enter labels, values, and formulas—the essentials for building a simple worksheet. Then they learn to create more complex worksheets by learning how to create complex formulas and functions.

Chapter outline

FAQ	Page #	Material covered
What's in the Excel window?	55	Overview of elements and features in the Excel window; definitions of basic terminology
How do I enter labels?	56	Definition and purpose of labels; how and when labels truncate, wrap, or extend into empty cells; process of entering and editing labels
How do I enter values?	57	Definition and purpose of values; process for entering and editing values; differentiating between numerical labels and values; drag-and-fill technique
How do I enter formulas?	58	Definition and purpose of formulas and cell reference; process for creating simple formulas
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How do I use functions?	60	Definitions and purpose of functions and arguments; process for inserting a function; how to obtain help about functions
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Technical notes

Your *Practical Office 2003* book includes an action-lacked **multimedia Book-on-CD**. Each page of the Book-on-CD looks exactly like its corresponding page in the printed book and contains interactive elements such as pop-up definitions, interactive animations, and interactive end-of-chapter material. The Book-on-CD is easy to use at home, at school, or at work. For more information on the Book-on-CD, please reference the preface of this book.

The following Materials Needed section is the same for each chapter of *The Practical Office 2003*. This information is repeated in each chapter for your convenience.

Materials needed

Windows 95, 98, Me, 2000, or XP installed on the lab computers. *The Practical Office 2003* Book-on-CD is optimized for use with Windows 95, Windows 98, Windows Me, Windows 2000, and Windows XP. Note that *The Practical Office 2003* Book-on-CD will *not* work acceptably on computers installed with Windows 3.1.

Tracking Disk. You can have students create a Tracking Disk, which records their scores on the Skill Sets, so that you can monitor their progress. When you start a Skill Set, the program checks drive A: for a Tracking Disk. If you want to create a Tracking Disk, insert a formatted floppy disk, then click **Create Tracking File A:\TRACKING.TRK**. You'll be prompted to enter your name, student ID, and section number, all of which will be stored on the Tracking Disk. If you don't want to save your results, just click **Continue without a Tracking Disk**. This option allows you to try a Skill Set review without saving your results. For more information on the Tracking Disk, please reference the preface of this book.

Project Disk. For many of the projects, your students must create a Project Disk, onto which they copy project files and save their completed work. Students create their own Project Disk by inserting a blank, formatted floppy disk in drive A (or the appropriate drive), clicking Project Disk menu option on the Welcome screen of *The Practical Office 2003* CD-ROM, clicking the menu option for the assigned project, and then following the instructions to copy the project file to the blank floppy disk. A second method is to click the Copy It! button on the first page of the project to copy the file for that project to their floppy disk.

You can specify whether students submit the disk for your review, submit their printed completed project, or send you their completed file as an e-mail attachment. For e-mail submission, students will need your e-mail address.

This chapter assumes your students have access to a lab (or home) computer and have previously used a mouse.

Content and Certification. With the increasing presence and use of computers in both school curriculum and the workplace- there is a growing need to evaluate and measure computer skills through a set of certification standards. *Practical Office 2003* integrates computer concepts, Office applications, and Internet concepts making it the perfect solution for your introductory computer needs.



The content of the text and Book-on-CD maps to the certification standards for IC3 (Internet and Computing Core Certification). This certification is a set of 3 exam modules including: Computing Fundamentals, Key Applications, and Living Online.

Even if you don't use IC3 certification, *Practical Office 2003* is a good fit for many other certification standards developed by industry, your state, or your school. For more information on how *Practical Office 2003* can work with your course or for more information on certifications such as IC3 and ICDL, contact your Course Technology Sales Representative, or go to www.course.com.

Instructional notes

Key terms

active cell (55): The cell that you can currently edit or modify.

argument (61): A value or cell reference used in a spreadsheet function used to calculate the result of the function.

cell reference (58): The column letter and row number that designate the location of a worksheet cell. For example, the cell reference C5 refers to a cell in column C, row 5.

circular reference (60): A formula that references the cell in which the formula resides.

drag-and-fill (57): Describes an operation for automatically entering data into a range of cells using the Fill handle.

formula (58): A mathematical statement that describes the actions to be performed on values in a worksheet cell.

function (60): In worksheets, a built-in formula for making a calculation.

label (56): Any text entered into a cell of a worksheet. Usually used to identify number data in other cells.

marquee (58): An animated, dotted rectangle that highlights cells in a worksheet that have been selected for use in a formula or function.

Microsoft Excel (54): Spreadsheet software that is part of Microsoft Office, best suited for working with numbers and formulas.

range (55): A block of contiguous cells in a worksheet.

spreadsheet software (54): Computer programs that perform calculations on the basis of numbers and formulas supplied by the user, and produce output in the form of tables and graphs.

value (57): A number intended for use in a calculation and that is entered into a cell of a worksheet.

workbook (55): A collection of individual worksheets that are stored together in one file.

worksheet (55): A computerized, or electronic, spreadsheet that consists of a grid of columns and rows.

worksheet cell (55): The rectangle formed by the intersection of a column and row.

Lecture notes

TIP: The examples in *The Practical Office 2003* depict a default installation of Microsoft Excel with (1) the “Menus show recently used commands” turned off and (2) the Standard and Formatting toolbars displayed in two rows. When working with the interactive PlayIt! examples and the end-of-chapter Skill Sets, students are using a simulated environment with these settings. When using a home, work, or lab computer to complete the projects, these settings might be different. Page 129 explains how to configure Microsoft Excel so that it resembles the examples in the textbook.

What’s in the Excel window?

Students are introduced to Microsoft Excel by looking at the features available in the program window. You might discuss the advantages of using Excel **worksheets** and **workbooks** compared to calculators. Not only can students use worksheets to perform both simple and complex calculations, but also they can use them to create graphs and examine what-if scenarios (examples: What if the budget percentage for rent increased 10%? What if the monthly income decreased by 5%?).

TIP: Using the figure on page 55 as an example, emphasize to your students the importance of a well-organized worksheet. Have your students use *distinct* categories that are clearly labeled when creating a worksheet. Point out that anyone who uses the worksheet should be able to interpret it. Also point out a **cell**, an **active cell**, and a **range**.

You might want to clarify the terms “spreadsheet,” “worksheet,” and “workbook” to make sure that students understand the differences. A “spreadsheet” is a manual or electronic grid that can be used for calculations. A “worksheet” is a single grid provided by spreadsheet software. A “workbook” is a collection of worksheets that are stored as a single file.

TIP: To reinforce the wide range of purposes of Excel, ask your students to list as many examples as possible of how they might use spreadsheets in their own lives. Some examples include budgeting, projecting expenses, and data analysis.

Although mentioned briefly in bullet 2 on page 55, you might want to emphasize to students that they can rename sheet tabs with meaningful names to help make it clear what data is included on each worksheet. Demonstrate how to rename a worksheet: Right-click the sheet tab you want to rename, click Rename, type a meaningful name, and press the Enter key. Notice that the sheet tab size increases or decreases to display all the characters. Also, show students that they can reorder the worksheets by dragging a sheet tab left or right to a new location.

How do I enter labels?

Labels provide the road signs for users to navigate through a worksheet. Descriptive labels enable both the creator and other users to quickly determine the purpose of a column or row of data. Remind students that without labels, a worksheet is just an incomprehensible jumble of numbers.

TIP: To encourage students to think of appropriate labels, give students a scenario and have them create the appropriate labels for a worksheet. For example, one scenario might be an annual sales meeting of regional managers. Appropriate labels for this scenario could be the sales regions (Northeast, Midwest, South, and West) and sales by quarter (January-March, April-June, July-September, October-December).

Students learn two ways to edit the contents of a cell: (1) by single-clicking the cell, and then editing from the Formula bar or (2) double-clicking the cell. Students with good mouse skills will probably prefer the double-click method.

TIP: As an in-class demonstration, review the different ways to enter and edit cell labels. Enter both long and short labels. Then, demonstrate how to make the longer labels wrap within the cell. You might also want to introduce the concept of changing column widths (discussed on page 68 in the FAQ “How do I adjust the width of a column?”).

How do I enter values?

Reinforce the difference between labels and **values**, presented on pages 56 and 57. Students sometimes wonder why a phone number is considered a label instead of a value. Emphasize that values are numbers that will be used for calculations, whereas labels are text or numbers that describe the values.

TIP: As an in-class demonstration, show students how to use the Fill handle to **drag-and-fill** values. First show students how to drag-and-fill the same value by entering a value in a cell and dragging the Fill handle. Then show students how to drag-and-fill consecutive values by entering a sequential set of values (such as 1, 2, and 3 in cells A1, A2, and A3, respectively), selecting those cells, and then dragging the Fill handle. This feature can be a handy timesaver, especially for entering months, dates, numbers, and letters.

How do I enter formulas?

Formulas are where students begin to see the power of using Excel rather than just typing data into a table and adding, subtracting, multiplying, or dividing values by hand. Simple formulas work similarly to punching values and arithmetic operators into a calculator. However, instead of typing the value into the formula, students use the appropriate **cell reference**. This enables values to be corrected, updated, or changed as needed.

TIP: You might want to review various ways to enter formulas:

- (1) type the entire formula,
- (2) use the arrow keys to point to the cells for the formula,
- (3) point to the cells for the formula,
- (4) use the Sum button, or
- (5) use the Paste Function dialog box.

TIP: To familiarize students with formulas, ask them to write down or create specific formulas for a worksheet. Supply students with a worksheet that has both labels and values. Give them various calculations (using the labels rather cell references) for which they must create formulas.

How do I create complex formulas?

Once students have mastered simple formulas, they should be ready to tackle more complex formulas. Although the process for creating complex formulas is similar to the process for creating simple formulas, some students will need a quick refresher course on the mathematical order of operations. Present several examples to make sure your students understand that multiplication and division are performed before addition and subtraction, regardless of the order in which these operators appear in a formula.

TIP: The authors encourage students to always use parentheses in complex formulas to avoid being “caught” by the default order of operations. As an in-class demonstration, present several examples of complex formulas, showing how to use parentheses to make sure the formula calculates the expected results. As an in-class activity, give students written descriptions of several complex formulas and have the students convert them to numeric formulas complete with parentheses.

TIP: Remind students that formulas can include any combination of values, cell references, and arithmetic operators. Also, point out that the cells display the formula results, whereas the Formula bar displays the active cell's formula.

How do I use functions?

The Dolt! button on page 60 demonstrates the Average function, a **function** with whose application students should be familiar. Even though students could easily create a formula that averages, using a function to perform this familiar task should help students see how **arguments** are used in functions, how functions work, and the benefits of using a function. However, remind students, using the figures on pages 60 and 61 as examples, that they need to use the correct format when completing the function's arguments.

TIP: Create a worksheet in class that uses several functions (monthly budget, company budget, etc.). Explain that the cells display the results of these functions although there is actually a function entered in the cell. Then click the Tools menu, click Options, and select the Formulas check box in the Window options section on the View tab. Your students can then see the formulas underlying the values that appear in the worksheet cells.

Review some of the myriad of functions available in Excel. Point out both familiar and unfamiliar functions in some of the various categories. Encourage your students to familiarize themselves with what functions are available so that they learn the full extent of Excel's capabilities.

TIP: As an in-class activity, use a more sophisticated function and have students try to figure out what arguments are needed. Demonstrate the use of the Help system as a way to verify if they determined the arguments correctly.

How do I use the AutoSum button?

Once your students understand and know how to enter formulas and functions, they are ready to learn about some of the shortcuts. The AutoSum button is one such shortcut. Summation is one of the most common tasks they will need to perform in a worksheet. The AutoSum button provides a quick way to insert the Sum function.

TIP: Demonstrate the use of the AutoSum button. Show students examples of using the AutoSum button when it selects the appropriate cells as well as when it does not. Also, show students how they can use the AutoSum button even in a blank area of the worksheet and then select the cells they want to sum.

Solutions to QuickChecks

Solutions to QuickCheck **A**

1. active (highlighted)
2. range
3. Formula
4. =C2-C3
5. argument

Solutions to QuickCheck **B**

1. E
2. F
3. G
4. B
5. C